Original Article

Does entry test make any difference on the future performance of medical students?

Muhammad Ayaz Bhatti,[1] Masood Anwar[2]

Department of Community Medicine,[1] Department of Haematology,[2] Islamic International Medical College Rawalpindi, Riphah International University.

Corresponding Author: Muhammad Ayaz Bhatti. E-mail: ayaz.bhatti@riphah.edu.pk

Abstract

Objective: To observe the influence/efficiency of entry test in the selection of students for MBBS. To see the effect of FSC and Entry test marks on the future performance of students in the coming years.

Methods: This was an Analytical Prospective Longitudinal study carried out in a private medical college from December 2009 to April 2011. Sampling was universal as all the students of year 2009 who succeeded in getting admission were included. The subjects were selected at the time of admission and the whole class (admission intake) comprising of 100 students during the admission year 2009 were studied. The same cohort was observed over a period of three years. The base line data was collected from the record, documents submitted at the time of admission and verified from the original record.

Results: The results of FSC and entry test are consistent in approximately all the percentage groups who got above 70% marks in FSC. Consistency was only disturbed in students who acquired 61-70% marks in FSC and entry test. The students who got 81-90% in FSC and Entry test performed well in first and second year MBBS. The males who had 66-70% marks in FSC were the poor performers (100% failed 5 out of 5) while among the females (33% failed) who got 71-75% in FSC. Best performance was shown by those who got 81-85% in FSC i.e. 91% males and 90% females passed in annual examinations. The results of FSC and Entry test are highly significant in statistical application and hence there was no association between the entry test marks and future performance.

Conclusion: FSC marks are of prime importance, and are the best marker for merit admission in medical college. Entry test is the tool for equalization in between different institutions, boards and provinces. It controls the errors and omissions done deliberately or unintentionally by students, board mal-practitioners and other confounders at institution and board level in FSC.

Keywords: MCAT, NTS, ETS, NAT, GAT. (JPMA 62: 664; 2012)

Introduction

Entry test is the starting point for any student seeking admission to an educational institution. The objectives of an entry test are to select students with academic merit as well as appropriate personality and aptitude for admission. Such a test is very essential in view of the fact that the applicants for admission have qualified from a variety of institutions of variable standards, or from a variety of Boards whose examinations are of different standards and occasionally a reasonable number carry fake FSC certificates and scores.[1] The principle of justice demands that their relative merit must be determined by subjecting them to a single examination. The admitting institutions, the candidates, the boards of secondary education, the feeding schools, colleges and the community equally share the benefits of the entry test. Medical education is a continuum and a lifelong endeavor, and all its components, secondary schools, colleges, medical schools, training programmes, practices, hospitals and professional societies need to work together. As in any complex interdependent system frequent feedback is absolutely necessary.[2] Education in the largest sense is any act or experience that has a formative effect on the mind, character or physical ability of an individual. In its technical sense, education is the process by which society deliberately transmits its accumulated knowledge, skills, and values from one generation to another.[3] Over the last two to three decades, many universities have therefore been asked to redefine the required knowledge base, set of skills, attitudes and experiences of physicians at all levels of training.[4] The goal of the Entry test in Medical College is to select capable students who can gain by attending academic activities to excel in both the art and science of medicine. Medical schools should be educating for capability, so that individual learning tested once is insufficient and competence requires repeated demonstration.[5] Entry test is mandatory for those seeking admission in medical colleges either in public or private

sector in Pakistan. It bears weightage assigned by the Pakistan Medical and Dental Council (Current Weightage is 50%). The Medical College Admission Test is commonly known as the MCAT. Many universities in the world also conduct a test before awarding admission to any candidate. National Testing Service (NTS) is an Organization in Pakistan that conducts academic performance evaluation tests. It is similar to Educational Testing Service (ETS) in the US. NTS offers two main types of tests, the National Admission Test (NAT) and the Graduate Assessment Test (GAT). An educational experience involves four distinct common places learner, curriculum, milieu and teacher.[6]

Assessments would allow meaningful feedback to individuals, schools, training programmes and the system as a whole.[7] Medical schools prepare their students to function as doctors for the rest of their lives. In most parts of the world, the government or a professional body certifies and licenses doctors, endorsing them as competent practitioners of medicine.[8] Reliable quality of medical practice remains a major challenge. Non-adherence to accepted medical guidelines has many reasons.[9] The ability of individuals to adapt change, generate new knowledge and improve their performance and professionalism is as important as specific knowledge and skills.[10] There is now widespread agreement that there is a need for evidence to underpin as much medical education as is feasible.[11] Evaluation is an essential part of the educational process. Medical schools require evaluation as part of their quality assurance procedures, It provides evidence of how well students learning objectives are being achieved and whether teaching standards are being maintained.[12]

A medical curriculum should constantly develop in response to the needs of students, institutions, and society. Evaluation can check that the curriculum is evolving in the desired way.[13] Successful teaching programmes recognize and address the needs of students and teachers and use techniques that are likely to be effective, efficient and acceptable.[14] In this paper the performance and evaluation of the students has been addressed. The minimum passing grade for FSC to appear in the entry test was 60%, there is no pass fail criterion for entry test and during the graduation in MBBS was 50%. The prospective study looks upon the progress/regress, consistency of FSC, entry test 1st and 2nd year MBBS annual exams and also validation of the entry test with FSC marks.

Methodology

This was an Analytical Prospective Longitudinal study carried out in a private medical college from December 2009 to April 2011. The Sampling was universal as all the 100 students who succeeded in getting admission during the admission year 2009 were included. Among the 100, four students left their studies in the first three months and another nine students were not eligible to appear in the examination. These were thus excluded. Over all 87 students were followed from December 2009 to April 2011. Objectives of the study were 1- To see the influence/ efficiency of entry test in the selection of students for MBBS. 2-To see the effect of FSC and Entry test marks on the future performance of students in the coming years. The base line data was collected from the record, documents submitted at the time of admission and verified from the original record. Four main variables were studied in addition to others. These were the Marks obtained in FSC /A level, Entry test, first year and second year MBBS Annual examination. Various other relevant factors were also studied but the main focus was that "Does entry test make any difference on the future performance of medical students". Gender distribution was also studied.

Data was collected through a questionnaire directly and indirectly from the record mentioning Class year' Sex/ Gender, Fathers Occupation, Marks obtained in FSC, FSC Percentage, Entry test marks, First year MBBS percentage and Second year percentage marks.

Data was entered and analyzed in SPSS version 17, tables and graphs were made for data presentation, percentages, cross tabulation and non parametric test analysis was done by applying Friedman's test, and Correlation coefficient.

Results

There were 100 students in the class (34% males and 66% females). In FSC 35% of males scored 81-90% but in the entry test only 28% were able to get the same score. Seven percent were not able to get the same score as before. Thirty six percent females scored 81-90% marks in FSC and 29% were able to achieve the same score in the entry test. Similar to males 7% females were unable to get scores equivalent to FSC.

In the 71-80% category, 42% males achieved this

Correlations r = Correlation coefficient of entry test marks with FSC, first year and second year marks.

		FSC Percentage	Entry test marks	First year percentage	Second year Percentage
FSC Percentage	Pearson Correlation	1	-0.439	0.452	0.372
	Sig.		< 0.000	< 0.000	< 0.000
Entry test marks	Pearson Correlation	-0.439	1	-0.537	-0.469
	Sig.	< 0.000		< 0.000	< 0.000

score in FSC and 45% were able to get it in the entry test, which was 3% more scoring males in entry test as compared to FSC. The number of females who got the score of 71-80% in FSC was 51% and 50% females got the same in entry test. There was only one percent difference in this category.

The number of male students who got 61-70% marks in FSC were 22% and 14% of them were able to score the same percentage in entry test. In all 36% of this category was unable to sustain or validate their percentage in the entry test. Among the females there were 12 percent who were able to score in this bracket in FSC but in entry test 19% achieved this category.

In 51-60 percent category there was no male or female students below 60% marks in FSC as they are not allowed to appear in the entry test. But 13% of male students and 2% females achieved this category in entry test (Table-1). There is consistency in the results for FSC and of the entry test i.e. those who perform well in FSC are able to do so in the entrance exams as well. This is true only in the categories who acquired 71% or higher in FSC. Those who achieved less than 70% marks in either gender do not show consistency in their performance. Their performance seemed to decline in the first year MBBS especially by female candidates and only 9% were able to achieve 71-80% marks in the annual exam. 45% males and 57% females were able to get in between 60-70%. Their performance improved in the 2nd year where 41% males and 50% females were able to score between 71-80% in the 2nd year MBBS.

In the first year MBBS 80% students passed in the annual examination (70 out of 87) and 20% in the supplementary. Gender wise distribution was 23 (74%) males out of 31 and 47 (84%) females out of 56. Eight males among 31 (26%) and 9 females (16%) among 56 failed. Performance of females was much better than the males. Amongst the males (100% failed 5 out of 5) who got 66-70% marks in FSC while among the females (33% failed) who got 71-75% in FSC. Best performance was shown by those who had 81-85% in FSC i.e. 91% males and 90% females were able to pass in the annual exam. 90% females and 94% males who had passed had 76-80% marks in FSC Table-2.

Results of FSC and entry test have been consistent in approximately all the percentage groups. During the first

Table-1: Gender wise percentage of students and marks percentage in FSC and entry test.

Marks	Gender	51-60%	61-70%	71-80%	81-90%
FSC	Male%	0	22	42	35
	Female%	0	12	51	36
Entry Test	Male%	13	14	45	28
	Female%	2	19	50	29
1st Year Annual	Male%	13	45	16	0
	Female%	18	57	9	0
2nd Year Annual	Male%	3	52	41	0
	Female%	2	48	50	0

Table-2: Gender wise performance in First year MBBS.

FSC Percentage	Males Number		Females Number		Total Number	
	Annual	Supplementary	Annual	Supplementary	Male	Female
60-65 %	1	1	1	2	2	3
66-70%	0	5	3	1	5	4
71-75%	3	0	9	3	3	12
76-80%	9	1	16	1	10	17
81-85%	10	1	18	2	11	20
Grand Total	23	8	47	9	31	56

Table-3: Summary of FSC, entry test, first year and second year performance.

	FSC 87= 100%		Entry Test 87=100%	First Year Passed		Second Year Passed	
Marks %age	No of students	Percent of students		Annual	Supplementary	Annual	Supplementary
40-50	-	-	1 (1.4%)				
51-60	-	-	4 (4.6%)				
61-70	14	(15.6%)	15 (16.7%)	5 (6%)	9 (10%)	13 (15%)	1(1%)
71-80	42	(46.7%)	41 (45.6%)	37 (42%)	5 (6%)	42(49%)	0
81-90	31	(34.4%)	24 (26.7%)	28 (32%)	3 (4%)	30 (35%)	1(1%)

year MBBS this consistency was not carried on by the student group who acquired 61-70% marks in FSC and entry test; but in second year they regained their consistency. In the students who acquired 71-80% in FSC and Entry test are consistent in first year and improved their performance in second year MBBS. Similarly the students who got 81 - 90% in FSC and Entry test performed well in the first and second year both (Table-3).

The non-parametric test applied was Friedman's test to see the significance. Friedman test showed that any two of the four examination marks (i.e. entry test, FSc, first year and second year) are significantly different from the other two. On application of correlation coefficient it was found that entry test marks had moderate negative correlation with FSc marks (-0.439). Entry test marks had moderate negative correlation with first year and second year marks (-0.537and -0.469 respectively). These results statistically represent the evidence that there is no significance of having entry test and its effect on student's future performance. It's not the effective tool to be used as entry criteria or as a standard method. On the other hand result of FSc had moderate positive association 0.452 in first year and 0.372 in second year.

Discussion

In the current study females dominated in getting admission in medical college. The ratio of females to males was 2:1. The definite drift in male-female ratio for admission in medical institutes is not only seen in Pakistan but Europe and America also.[15]

One third of students (male and female both) acquired 81-90% marks in FSC and 28-29% acquired the same in the entry test which shows consistency in this category. 71-80% marks were obtained by 42% males and 51% females in FSC and 45% males and 50% females in the entry test which is again consistent. This shows that a good performance in FSC is necessary to achieve the required results in entry test also.

In the first year MBBS, 80% students were able to pass the annual examination (84 % females 74 % males). Among the 20% who failed there were 26% males and 16% females. The performance of students declined in first year MBBS especially by female candidates; as only 9% acquired 71-80% marks in annual exam. This may be due to a new environment, different teaching methodology and assessment techniques. Poor performance was shown by the candidates who got 66-70% marks in FSC and Entry test. Here an important aspect is explored that the ceiling for eligibility for admission in MBBS should be elevated from 60% to 70%, so that the better results could be achieved in medical education.

There were 14 candidates who got 61-70% marks in FSC and 15 candidates who got this percentage in the entry test. Out of these only 5 (33%) passed in first year MBBS annual examination. This is the group that had maximum failures. From the performance of this group it looks logical that only those candidates should be allowed to appear in the entry test who get more than 70% marks in FSC. The entry test should be an aptitude test! Also, results should mention the name of Board and FSc marks also, so that comparison of FSc marks and entry test marks can be made and the efficacy and credibility of the board can be ascertained. The study also depicts that the entry test has no statistical significance or superiority on FSC. This was just a cross check tool which is not as effective as it is thought or projected.

The study also highlights that Medical admission can be relied only on FSC if the boards and educational institutions can be monitored and standardized, this can save a handsome amount of resources as well as time and effort from the Government, students and parents. FSC and entry test are consistent in approximately all the percentage groups above 70% marks. During the first year MBBS this consistency is disturbed in students who acquired 61-70% marks in FSC and entry test but in second year they improved; this may be due to better understanding, putting in more effort, acclimatization with the teaching environment, learning and understanding the strategies of exam taking, surveillance of parents and teachers and change of teaching and evaluation methodology.

Conclusion

According to our study, FSC marks are of prime importance, and are the best marker for merit admission in medical college. Entry test is the best tool for equalization in between different institutions, boards and provinces as Entry tests validate and augment the result of FSC. Those who perform well in FSC also perform well in Entry tests and in subsequent years in MBBS except 1st year. It controls the errors and omissions done deliberately or unintentionally by students, board mal-practices and other confounders at institution and board level. It also checks the fake degrees and fake scores obtained by means other than legal one. The only drawback is additional burden on resources, labour, duplication of examination and mental trauma to the students and parents. Entry test acts as a cross check and validate the FSC marks.

Result should also mention the name of Board and FSC marks also, so that comparison of FSC marks and entry test marks can be made and the efficiency and credibility of board can be ascertained.

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